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1. A pilot fuel nozzle for a gas turbine combustor comprising:

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an elongated housing of generally circular cross section extending from a first end to a second end, having a center axis, and a length, said elongated housing comprising:

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a first inner diameter extending from said first end to said second end;  
a first portion and a second portion, each having a first outer diameter, thereby forming a first wall thickness between said first inner diameter and said first outer diameter;  
a third portion having a second outer diameter, thereby forming a second wall thickness between said first inner diameter and said second outer diameter;

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a first flange fixed to said elongated housing at said first end;

a second flange fixed to said elongated housing along said third portion;

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a nozzle tip containing a plurality of fuel injection holes, said nozzle tip located at said second end; and,

wherein said third portion is located between said first portion and said second portion.

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2. The pilot fuel nozzle of Claim 1 wherein said second outer diameter is greater than said first outer diameter.

3. The pilot fuel nozzle of Claim 1 wherein said plurality of fuel injection holes comprises at least three holes.

5 4. The pilot fuel nozzle of Claim 1 wherein said first portion, said second portion, and said third portion are formed from multiple tubes fixed together to form said elongated housing.

10 5. The pilot fuel nozzle of Claim 1 wherein said first portion, said second portion, and said third portion are formed from a single piece of tubing.

6. A pilot fuel nozzle for a gas turbine combustor comprising:

an elongated housing of generally circular cross section extending from a first end to a second end, having a center axis, and a length, said elongated housing comprising:

15 a first inner diameter extending from said first end to said second end;  
a first portion having a first outer diameter, thereby forming a first wall thickness between said first inner diameter and said first outer diameter;  
a second portion having a second outer diameter, thereby forming a  
20 second wall thickness between said first inner diameter and said second outer diameter;

a first flange fixed to said elongated housing at said first end;

25 a second flange fixed to said elongated housing at approximately a mid-span location of said first portion;

a nozzle tip containing a plurality of fuel injection holes, said nozzle tip located at said second end; and,

30 wherein said first portion extends at least 50% of said length of said elongated housing.

35 7. The pilot fuel nozzle of Claim 6 wherein said first outer diameter is greater than said second outer diameter.

8. The pilot fuel nozzle of Claim 6 wherein said elongated housing is formed from a single tubular body.

9. The pilot fuel nozzle of Claim 6 wherein said first portion and second portion are formed from multiple tubes fixed together to form said elongated housing.

10. The pilot fuel nozzle of Claim 6 wherein said plurality of fuel injection holes comprises at least three holes.

11. The method of changing the natural frequency of gas turbine combustor pilot fuel nozzle comprising the steps:

a) providing a pilot fuel nozzle of generally circular cross section extending from a first end to a second end, having a center axis, a length, a first inner diameter extending from said first end to said second end, a first portion and second portion having a first outer diameter, thereby forming a first wall thickness between said first inner diameter and said first outer diameter, a first flange fixed to said first end of said elongated housing, a second flange fixed to said elongated housing along a mid-span region of said second portion, and a nozzle tip containing a plurality of fuel injection holes, said nozzle tip located at said second end;

b) removing said mid-span region of said second portion of said elongated housing including said second flange;

c) inserting a third portion of elongated housing between said first portion and said second portion, said third portion having a second flange, a first inner diameter, and a second outer diameter, thereby forming a second thickness between said first inner diameter and said second outer diameter, wherein said

5                    second outer diameter is greater than said first outer diameter and said second thickness is greater than said first thickness; and,

                    d) fixing said third portion to said first portion and said second portion.

10                  12. The method of Claim 11 wherein said first portion, said second portion, and said third portion of said pilot fuel nozzle are formed from multiple tubes fixed together.